

AMENDMENTS TO THE CLAIMS

1-33. (Canceled)

34. (Currently amended) A method for delivering a therapeutic or diagnostic agent to a cell, comprising:

(a) treating a cell with a composition consisting essentially of a transport agent and a therapeutic or diagnostic agent in an amount sufficient to be taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the composition, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent comprises a polycarboxylic acid polymer that is hydrophilic at about pH 7.4 and selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5, and wherein the polymer is selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof; and

(b) releasing the transport agent and therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

35. (Previously presented) The method of Claim 34, further comprising subjecting the treated cell to a stimulus to enhance the release of the therapeutic or diagnostic agent from the endosome to cytoplasm.

36. (Previously presented) The method of Claim 35, wherein the stimulus is ultrasound.

37. (Previously presented) The method of Claim 34, wherein the transport agent is hydrophilic at pH from about 6.8 to about 7.5, and hydrophobic at pH from about 5.0 to about 6.5.

38-56. (Canceled)

57. (Currently amended) The method of Claim 34, wherein the therapeutic agent ~~comprises a nucleic acid~~ is selected from the group consisting of a nucleoside, a nucleotide, and an oligonucleotide.

58. (Currently amended) The method of Claim 34, wherein the therapeutic agent ~~comprises~~ is selected from the group consisting of a protein, lipoprotein, glycoprotein, ~~[[or]] and~~ peptide.

59. (Currently amended) The method of Claim 34, wherein the therapeutic agent ~~comprises~~ is selected from the group consisting of a sugar ~~[[or]] and~~ a polysaccharide.

60. (Currently amended) The method of Claim 34, wherein the therapeutic agent ~~comprises~~ is a toxin.

61. (Currently amended) The method of Claim 34, wherein the therapeutic agent ~~comprises~~ is a toxin selected from the group consisting of ricin, diphtheria toxin B chain, adenovirus peptide, influenza virus peptide, GALA peptide, abrin, modeccin, Pseudomonas exotoxin, bryodin, mistletoe lectin, Shiga toxin, Escherichia coli labile toxin, Pertussis toxin, cholera toxin, anthrax toxin, viscumin, spaorin, gelonin, momordin, trichlosanthin, and pokeweed antiviral protein.

62. (Currently amended) The method of Claim 34, wherein the therapeutic agent ~~comprises~~ is ricin.

63. (Previously presented) The method of Claim 34, wherein the transport agent is poly(propylacrylic acid) and the therapeutic agent is ricin.

64. (Currently amended) The method of Claim 34, wherein the diagnostic agent ~~comprises~~ is a radiolabeled agent.

65. (Currently amended) The method of Claim 34, wherein the diagnostic agent ~~comprises~~ is a fluorescecently labeled agent.

66. (Currently amended) The method of Claim 34, wherein the diagnostic agent ~~comprises~~ is an enzymatically labeled agent.

67. (Currently amended) The method of Claim 34, wherein the diagnostic agent ~~comprises~~ is a contrast agent.

68. (Currently amended) The method of Claim ~~[[34]]~~ 103, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent.

69. (Currently amended) The method of Claim ~~[[34]]~~ 103, wherein the therapeutic or diagnostic agent is ionically coupled to the transport agent.

70-73. (Canceled)

74. (Currently amended) A composition for delivering a therapeutic or diagnostic agent to a cell, consisting essentially of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent ~~comprises~~ is a polycarboxylic acid polymer that is hydrophilic at about pH 7.4 and selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5, ~~wherein the polymer is selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof.~~

75. (Currently amended) The composition of Claim ~~[[74]]~~ 104, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent.

76. (Currently amended) The composition of Claim ~~[[74]]~~ 104, wherein the therapeutic or diagnostic agent is ionically coupled to the transport agent.

77. (Previously presented) The composition of Claim 74, wherein the transport agent is hydrophilic at pH from about 6.8 to about 7.5, and hydrophobic at pH from about 5.0 to about 6.5.

78-100. (Canceled)

101. (Currently amended) A method for delivering a therapeutic or diagnostic agent to a cell, comprising ~~consisting essentially of~~:

(a) treating a cell with a transport agent and a therapeutic or diagnostic agent, wherein the therapeutic agent is covalently coupled to the transport agent, wherein the transport agent and therapeutic or diagnostic agent ~~[[is]]~~ are taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the transport agent and therapeutic or diagnostic agent, and wherein the transport agent ~~comprises~~ is a poly(alkylacrylic acid) selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof; and

(b) releasing the transport agent and therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

102. (Currently amended) A composition for delivering a therapeutic or diagnostic agent to a cell, consisting essentially of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the therapeutic or diagnostic agent is covalently coupled to the transport agent, and wherein the transport agent ~~comprises~~ is a poly(alkylacrylic acid) selected from the group consisting of poly(ethylacrylic acid), poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof.

103. (New) A method for delivering a therapeutic or diagnostic agent to a cell, comprising:

(a) treating a cell with a composition consisting essentially of a transport agent and a therapeutic or diagnostic agent in an amount sufficient to be taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the composition, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent is a polycarboxylic acid polymer selected from the group consisting of poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5; and

(b) releasing the therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

104. (New) A composition for delivering a therapeutic or diagnostic agent to a cell, consisting essentially of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent is a polycarboxylic acid polymer selected from the group consisting of poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5.

105. (New) A method for delivering a therapeutic or diagnostic agent to a cell, comprising:

(a) treating a cell with a transport agent and a therapeutic or diagnostic agent, wherein the transport agent and therapeutic and diagnostic agent are taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the transport agent and therapeutic or diagnostic agent, and wherein the transport agent is a

poly(alkylacrylic acid) selected from the group consisting of poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof; and

(b) releasing the therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

106. (New) A composition for delivering a therapeutic or diagnostic agent to a cell, consisting essentially of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the transport agent is a poly(alkylacrylic acid) selected from the group consisting of poly(propylacrylic acid), poly(butylacrylic acid), and mixtures thereof.

107. (New) A method for delivering a therapeutic or diagnostic agent to a cell, comprising:

(a) treating a cell with a composition consisting essentially of a transport agent and a therapeutic or diagnostic agent in an amount sufficient to be taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the composition, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent is a graft copolymer or block copolymer, wherein the copolymer includes acrylic acid groups or alkyl substituted acrylic acid groups, with the proviso that the copolymer includes either propylacrylic acid groups or butylacrylic acid groups, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5; and

(b) releasing the therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

108. (New) A composition for delivering a therapeutic or diagnostic agent to a cell, consisting essentially of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent is a graft copolymer or block copolymer, wherein the copolymer includes acrylic acid

groups or alkyl substituted acrylic acid groups, with the proviso that the copolymer includes either propylacrylic acid groups or butylacrylic acid groups, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5.

109. (New) The method of Claim 107, wherein the copolymer includes ethyl acrylate groups, propyl acrylate groups, or butyl acrylate groups.

110. (New) The method of Claim 107, wherein the alkyl substituted acrylic acid groups include methacrylic acid groups, ethylacrylic acid groups, propylacrylic acid groups, and butylacrylic acid groups.

111. (New) The composition of Claim 108, wherein the copolymer includes ethyl acrylate groups, propyl acrylate groups, or butyl acrylate groups.

112. (New) The composition of Claim 108, wherein the alkyl substituted acrylic acid groups include methacrylic acid groups, ethylacrylic acid groups, propylacrylic acid groups, and butylacrylic acid groups.

113. (New) A method for delivering a therapeutic or diagnostic agent to a cell, comprising:

(a) treating a cell with a composition consisting essentially of a transport agent and a therapeutic or diagnostic agent in an amount sufficient to be taken into the cell by endocytosis to provide an endosome having an endosomal membrane and containing the composition, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent is a random copolymer that includes acrylic acid groups or alkyl substituted acrylic acid groups, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5; and

(b) releasing the therapeutic or diagnostic agent from the endosome into the cell cytoplasm by the action of the transport agent on the endosomal membrane.

114. (New) A composition for delivering a therapeutic or diagnostic agent to a cell, consisting essentially of (a) a transport agent and (b) a therapeutic or diagnostic agent, wherein the transport agent is effective in disrupting the endosomal membrane, wherein the transport agent is a random copolymer that includes acrylic acid groups or alkyl substituted acrylic acid groups, and wherein the transport agent is hydrophobic at pH from about 5.1 to about 5.5.

115. (New) The method of Claim 113, wherein the copolymer includes ethyl acrylate groups, propyl acrylate groups, or butyl acrylate groups.

116. (New) The method of Claim 113, wherein the alkyl substituted acrylic acid groups include methacrylic acid groups, ethylacrylic acid groups, propylacrylic acid groups, and butylacrylic acid groups.

117. (New) The composition of Claim 114, wherein the copolymer includes ethyl acrylate groups, propyl acrylate groups, or butyl acrylate groups.

118. (New) The composition of Claim 114, wherein the alkyl substituted acrylic acid groups include methacrylic acid groups, ethylacrylic acid groups, propylacrylic acid groups, and butylacrylic acid groups.